

CLAIMS

What is claimed is:

1. A magnetic storage device comprising:
a substrate;
a magnetic material adjacent to said substrate; and
regions of variable magnetic permeability in said magnetic material.
2. The device of claim 1, wherein said magnetic material comprises a multilayered structure.
3. The device of claim 2, wherein said multilayered structure comprises a two-phase mixture of ferromagnetic nanoparticles embedded in a heat-drawing material having a melting temperature greater than a melting temperature of said ferromagnetic nanoparticles.
4. The device of claim 1, wherein said magnetic material comprises any of permalloy, metglass, copper, nickel, iron, cobalt, boron, silicon and any combination thereof.
5. The device of claim 1, wherein said magnetic material is approximately 10 to 1,000 nm thick.

6. The device of claim 1, wherein said regions of variable magnetic permeability comprise regions having a lower permeability than other regions.
7. The device of claim 6, wherein said regions having a lower permeability than other regions is crystalline.
8. The device of claim 1, further comprising an insulator adjacent said regions of variable magnetic permeability.
9. A magnetic identification medium operable to be non-erasable when exposed to a magnetic field, said magnetic identification medium comprising:
 - magnetically permeable amorphous regions; and
 - magnetically permeable crystallized regions having magnetic permeable qualities different than said magnetic amorphous regions.
10. The magnetic identification medium of claim 9, wherein said magnetically permeable amorphous and crystallized regions comprise any of permalloy, metglass, copper, nickel, iron, cobalt, boron, silicon and any combination thereof.
11. The magnetic identification medium of claim 9, wherein said magnetically permeable crystallized regions have a lower permeability than said magnetically permeable amorphous regions.

12. The magnetic identification medium of claim 9, further comprising an insulator adjacent said magnetically permeable amorphous regions.
13. The magnetic identification medium of claim 9, further comprising an insulator adjacent said magnetically permeable crystallized regions.
14. A method of manufacturing data storage magnetic media, said method comprising:
applying a magnetic material to a substrate;
altering magnetic permeable qualities of selective regions of said magnetic material by heating said selective regions; and
cooling said magnetic material.
15. The method of claim 14, wherein said magnetic material comprises a multilayered structure.
16. The method of claim 15, wherein said multilayered structure comprises a two-phase mixture of ferromagnetic nanoparticles embedded in a heat-drawing material having a melting temperature greater than a melting temperature of said ferromagnetic nanoparticles.
17. The method of claim 14, wherein said magnetic material comprises any of permalloy, metglass, copper, nickel, iron, cobalt, boron, silicon and any combination thereof.
18. The method of claim 14, wherein said magnetic material is approximately 10 to 1,000

nm thick.

19. The method of claim 14, wherein said heating occurs using a laser pulse to heat said selective regions to create areas of lower permeability compared with unheated regions.

20. The method of claim 14, wherein said selective regions comprise areas of variable magnetic permeability.

21. The method of claim 20, wherein said areas of variable magnetic permeability include regions having a lower permeability than other regions.

22. The method of claim 21, wherein said regions having a lower permeability than other regions are crystalline.

23. The method of claim 21, wherein said regions of lower permeability than other regions are dimensioned and configured to be approximately 1 to 20 microns in size.

24. The method of claim 14, further comprising depositing an insulator adjacent said magnetic material.